NOTICE

All drawings located at the end of the document.

Draft Industrial Area Sampling and Analysis Plan Addendum #IA-04-08 IHSS Group 400-1

November 2003

Draft Industrial Area Sampling and Analysis Plan Addendum #IA-04-08 IHSS Group 400-1

Approval received from the Colorado Department of Public Health and Environment
( ).
Approval letter is contained in the Administrative Record.

November 2003

2

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACRONYMS

DOE	U.S. Department of Energy
FY	Fiscal Year
HRR	Historical Release Report
IA	Industrial Area
IASAP	Industrial Area Sampling and Analysis Plan
IHSS	Individual Hazardous Substance Site
MDL	method detection limit
OU	Operable Unit
PCOC	potential contaminant of concern
SAP	Sampling and Analysis Plan
UBC	Under Building Contamination
VOC	volatile organic compound

1.0 INTRODUCTION

This Industrial Area (IA) Sampling and Analysis Plan (SAP) (IASAP) Addendum #IA-04-08 includes Individual Hazardous Substance Site (IHSS) Group-specific information, sampling locations, and potential contaminants of concern (PCOCs) for the Building 439 Under Building Contamination (UBC) Site proposed for characterization during Fiscal Year (FY) 04. This IASAP Addendum is a supplement to the IASAP (DOE 2001) and includes data and proposed sampling locations for IHSS Group 400-1 and the associated UBC 439 Site. The location of IHSS Group 400-1 is shown on Figure 1.

2.0 EXISTING UBC, IHSS, AND PAC INFORMATION

IHSS Group 400-1 contains UBC 439, which is approximately 100 feet by 50 feet. Building 439 is a sheet metal structure built on an at-grade slab. The building was a maintenance building, and later used for Property Utilization & Disposition operations. Building 439 was used to receive, process, and ship surplus equipment and materials released by plant custodians. Building 439 housed small portable counters to monitor alpha, beta, and gamma radiation. Sources were controlled through the Site accountability procedures. Smear samples collected throughout RFETS were brought to Building 439 for counting. The building is currently being used as the break area for Building 440 operations personnel.

There are no process lines or foundation drains under the building. There is one floor drain that is tied to the sanitary sewer system. The sewer line exits the building near the northwestern corner (Figure 2).

Existing concentrations and activities greater than background means plus two standard deviations, or method detection limits (MDLs), in the vicinity of UBC 439 (IHSS 400-157.2) are presented on Figure 2. No characterization of soil beneath the Building 439 foundation slab has been conducted. Existing information and data for UBC 439 and IHSS 400-157.2 are available in Appendix C of the IASAP (DOE 2001), the IA Data Summary Report (DOE 2000), the Historical Release Reports (HRRs) for the Rocky Flats Plant (DOE 1992-2002), and Operable Unit (OU) 12 Technical Memorandum No. 2 (DOE 1995). PCOCs for this IHSS Group include radionuclides, metals (including beryllium and lithium), and volatile organic compounds (VOCs).

3.0 SAMPLING

The proposed sampling and analysis specifications for UBC 439 are summarized in Table 1 and listed, by sampling location, in Table 2. The proposed sampling locations are shown on Figure 3.

Two types of sampling strategies were used to determine sampling locations: statistical, and biased. Statistical grids have computer-generated random start points and orientations. The standard statistical grid size (i.e., the length between grid points) is 36 feet; however, the grid size for UBC sites is 72 feet. The IASAP 72-foot grid for UBC sites was not used to determine sampling locations at UBC 439 because of the relatively small dimension of the Building 439 slab (approximately 100 feet long by 50 feet wide). A 36-foot grid size was used instead.

One biased sampling location is proposed adjacent to the sewer line near the northwestern corner of the building slab. The biased sampling location was added to provide additional coverage under the slab. Additional biased samples will be collected around floor drains, and process and foundation drains, if such drains are encountered during slab removal activities. Note: no foundation drains, sumps or process waste lines are currently known to be located beneath the Building 439 slab.

No sampling locations are proposed outside UBC 439 (in IHSS 400-157.2), because the area will be sufficiently characterized as part of IHSS Group 400-6 (DOE 2003). As shown in IASAP Addendum #IA-03-14, the area has been previously characterized, and additional samples are proposed.

After characterization starts, the number and type of samples may change based on field conditions and/or sampling results. Changes to sampling specifications will be considered in consultation with the regulatory agencies.

Table 1
Sampling and Analysis Summary

Category	Total
Number of Sampling Locations	4
Number of Samples	4
Number of Radionuclide Analyses	4
Number of Metal Analyses	4
Number of VOC Analyses	4

Table 2
Sampling Specifications for IHSS Group 400-1

IHSS Group	IHSS/PAC/ UBC Site	Location	Easting	Northing	Media	Depth Interval	Analyte	On-Site Laboratory Method	Off-Site Laboratory Method
400-1	UBC 439	BX35-028	2082317.785	748424.337	Surface Soil	0 - 0.5'	Radionuclides	HPGe	Alpha Spec
							Metals (including Be and Li)	N/A	6010
							VOCs	8260	8260
		BY35-028	2082342.206	748407.067	Surface Soil	0 - 0.5'	Radionuclides	HPGe	Alpha Spec
							Metals (including Be and Li)	N/A	6010
							VOCs	8260	8260
		BY35-029	2082378.192	748408.059	Surface Soil	0 - 0.5'	Radionuclides	HPGe	Alpha Spec
							Metals (including Be and Li)	N/A	6010
							VOCs	8260	8260
		BY35-030	2082397.044	748377.390	Surface Soil	0 - 0.5'	Radionuclides	HPGe	Alpha Spec
							Metals (including Be and Li)	N/A	6010
							VOCs	8260	8260

Be – beryllium
Li – lithium
VOC – volatile organic compound
HPGe – high-purity germanium

4.0 REFERENCES

DOE, 1992-2002, Historical Release Reports for the Rocky Flats Plant, Golden, Colorado.

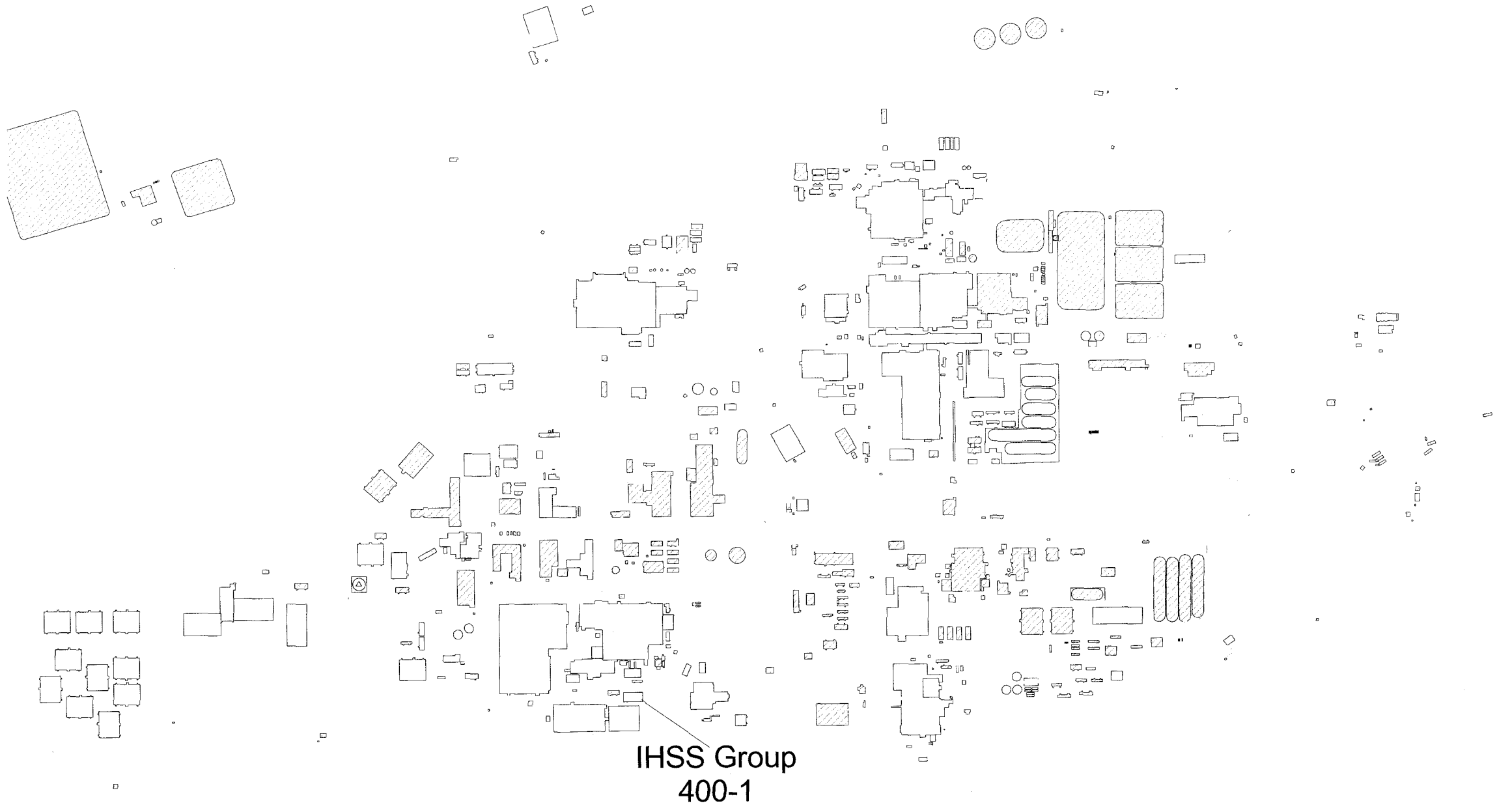
DOE, 1995, Operable Unit 12 Technical Memorandum No. 2, Rocky Flats Environmental Technology Site, Golden, Colorado, February.

DOE, 2000, Rocky Flats Environmental Technology Site Industrial Area Data Summary Report, Golden, Colorado, September.

DOE, 2001, Industrial Area Sampling and Analysis Plan, Rocky Flats Environmental Technology Site, Golden, Colorado, June.

DOE, 2003, Industrial Area Sampling and Analysis Plan Addendum #IA-03-14, IHSS Groups 400-5 and 400-6, Rocky Flats Environmental Technology Site, Golden, Colorado, August.

Figure 1
IHSS Group 400-1
Location Map



KEY

- IHSS Group 400-1
- Demolished building
- Standing buillding
- Paved road

N
W E
S

300 0 300 600 900 Feet

Scale = 1:8,000

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

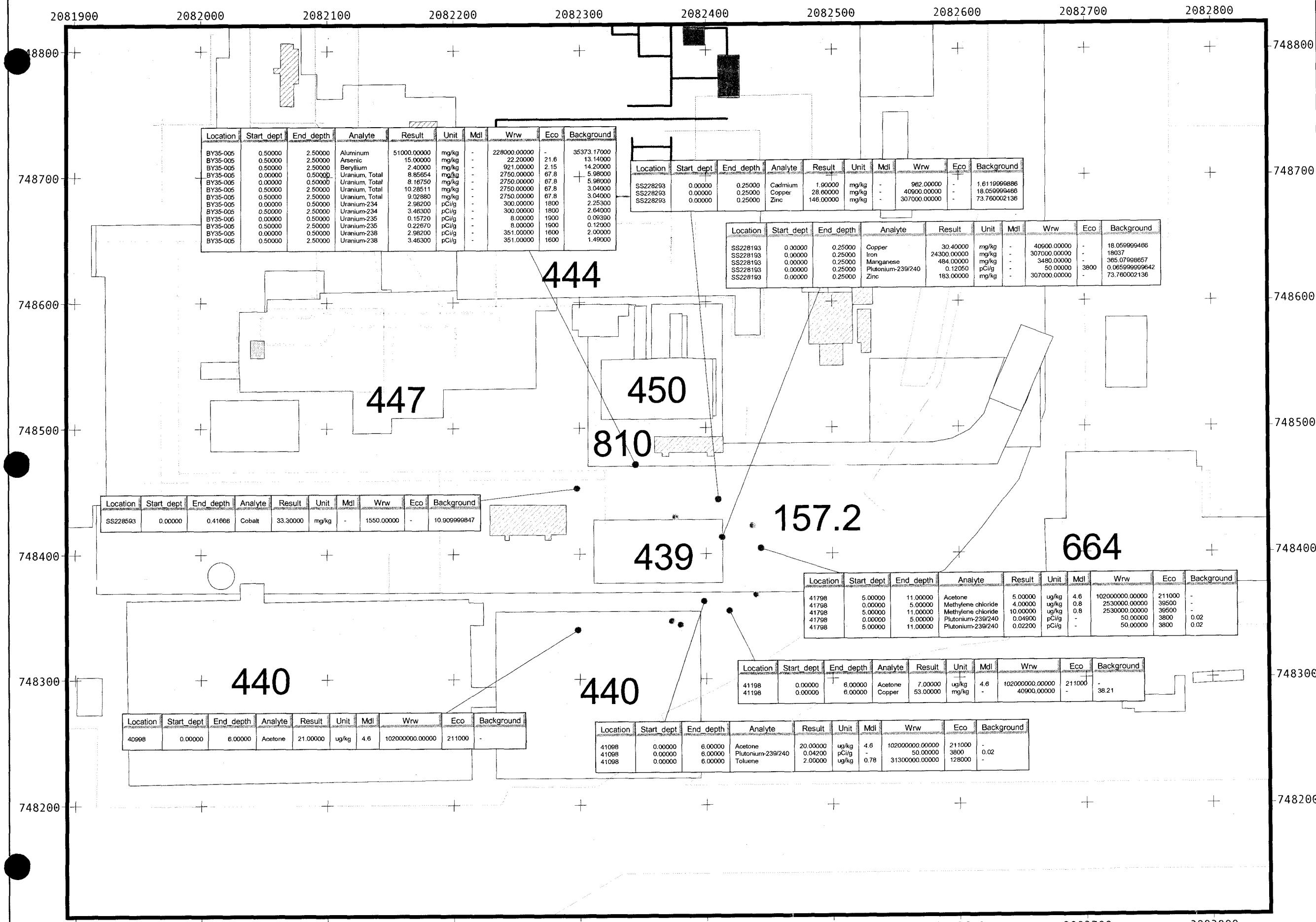
Prepared by: RADMS

Prepared for: KAISER•HILL COMPANY

File: w:\projects\2004\400-1\
400-1 char.apr

Date: 10/28/03

Figure 2
Existing Soil Sample Data Above Background Means Plus 2 Standard Deviations or Detection Limits



Location	Start_dept	End_depth	Analyte	Result	Unit	Mdl	Wrw	Eco	Background
BY35-005	0.50000	2.50000	Aluminum	51000.00000	mg/kg	-	228000.00000	-	35373.17000
BY35-005	0.50000	2.50000	Arsenic	15.00000	mg/kg	-	22.20000	21.6	13.14000
BY35-005	0.50000	2.50000	Beryllium	2.40000	mg/kg	-	921.00000	2.15	14.20000
BY35-005	0.00000	0.50000	Uranium, Total	8.85654	mg/kg	-	2750.00000	67.8	5.98000
BY35-005	0.00000	0.50000	Uranium, Total	8.16750	mg/kg	-	2750.00000	67.8	5.98000
BY35-005	0.50000	2.50000	Uranium, Total	10.28511	mg/kg	-	2750.00000	67.8	3.04000
BY35-005	0.50000	2.50000	Uranium, Total	9.02880	mg/kg	-	2750.00000	67.8	3.04000
BY35-005	0.00000	0.50000	Uranium-234	2.98200	pCi/g	-	300.00000	1800	2.25300
BY35-005	0.50000	2.50000	Uranium-234	3.46300	pCi/g	-	300.00000	1800	2.64000
BY35-005	0.00000	0.50000	Uranium-235	0.15720	pCi/g	-	8.00000	1900	0.09390
BY35-005	0.50000	2.50000	Uranium-235	0.22670	pCi/g	-	8.00000	1900	0.12000
BY35-005	0.00000	0.50000	Uranium-238	2.98200	pCi/g	-	351.00000	1600	2.00000
BY35-005	0.50000	2.50000	Uranium-238	3.46300	pCi/g	-	351.00000	1600	1.49000

Location	Start_dept	End_depth	Analyte	Result	Unit	Mdl	Wrw	Eco	Background
SS228293	0.00000	0.25000	Cadmium	1.90000	mg/kg	-	982.00000	-	1.6119999886
SS228293	0.00000	0.25000	Copper	28.60000	mg/kg	-	40900.00000	-	18.059999486
SS228293	0.00000	0.25000	Zinc	146.00000	mg/kg	-	307000.00000	-	73.760002136

Location	Start_dept	End_depth	Analyte	Result	Unit	Mdl	Wrw	Eco	Background
SS228193	0.00000	0.25000	Copper	30.40000	mg/kg	-	40900.00000	-	18.059999486
SS228193	0.00000	0.25000	Iron	24300.00000	mg/kg	-	307000.00000	-	18037
SS228193	0.00000	0.25000	Manganese	484.00000	mg/kg	-	3480.00000	-	365.07998657
SS228193	0.00000	0.25000	Plutonium-239/240	0.12050	pCi/g	-	50.00000	3800	0.065999999642
SS228193	0.00000	0.25000	Zinc	183.00000	mg/kg	-	307000.00000	-	73.760002136

Location	Start_dept	End_depth	Analyte	Result	Unit	Mdl	Wrw	Eco	Background
SS228593	0.00000	0.41666	Cobalt	33.30000	mg/kg	-	1550.00000	-	10.909999847

Location	Start_dept	End_depth	Analyte	Result	Unit	Mdl	Wrw	Eco	Background
41798	5.00000	11.00000	Acetone	5.00000	ug/kg	4.6	102000000.00000	211000	-
41798	0.00000	5.00000	Methylene chloride	4.00000	ug/kg	0.8	2530000.00000	39500	-
41798	5.00000	11.00000	Methylene chloride	10.00000	ug/kg	0.8	2530000.00000	39500	-
41798	0.00000	5.00000	Plutonium-239/240	0.04900	pCi/g	-	50.00000	3800	0.02
41798	5.00000	11.00000	Plutonium-239/240	0.02200	pCi/g	-	50.00000	3800	0.02

Location	Start_dept	End_depth	Analyte	Result	Unit	Mdl	Wrw	Eco	Background
40998	0.00000	6.00000	Acetone	21.00000	ug/kg	4.6	102000000.00000	211000	-

Location	Start_dept	End_depth	Analyte	Result	Unit	Mdl	Wrw	Eco	Background
41198	0.00000	6.00000	Acetone	7.00000	ug/kg	4.6	102000000.00000	211000	-
41198	0.00000	6.00000	Copper	53.00000	mg/kg	-	40900.00000	-	38.21

Location	Start_dept	End_depth	Analyte	Result	Unit	Mdl	Wrw	Eco	Background
41098	0.00000	6.00000	Acetone	20.00000	ug/kg	4.6	102000000.00000	211000	-
41098	0.00000	6.00000	Plutonium-239/240	0.04200	pCi/g	-	50.00000	3800	0.02
41098	0.00000	6.00000	Toluene	2.00000	ug/kg	0.78	31300000.00000	128000	-

KEY

- Sampling location with concentration exceeding ecological receptor AL
- Sampling location with concentrations greater than background means or detection limits
- Sampling location with concentrations less than background means or detection limits

UBC 439

IHSS 400-157.2

PAC

Demolished building

Standing building

OPWL

Storm drain

Sewer line

Paved area

Stream

Fence

N
W E
S

20 0 20 40 60 80 100 Feet

Scale = 1:900

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

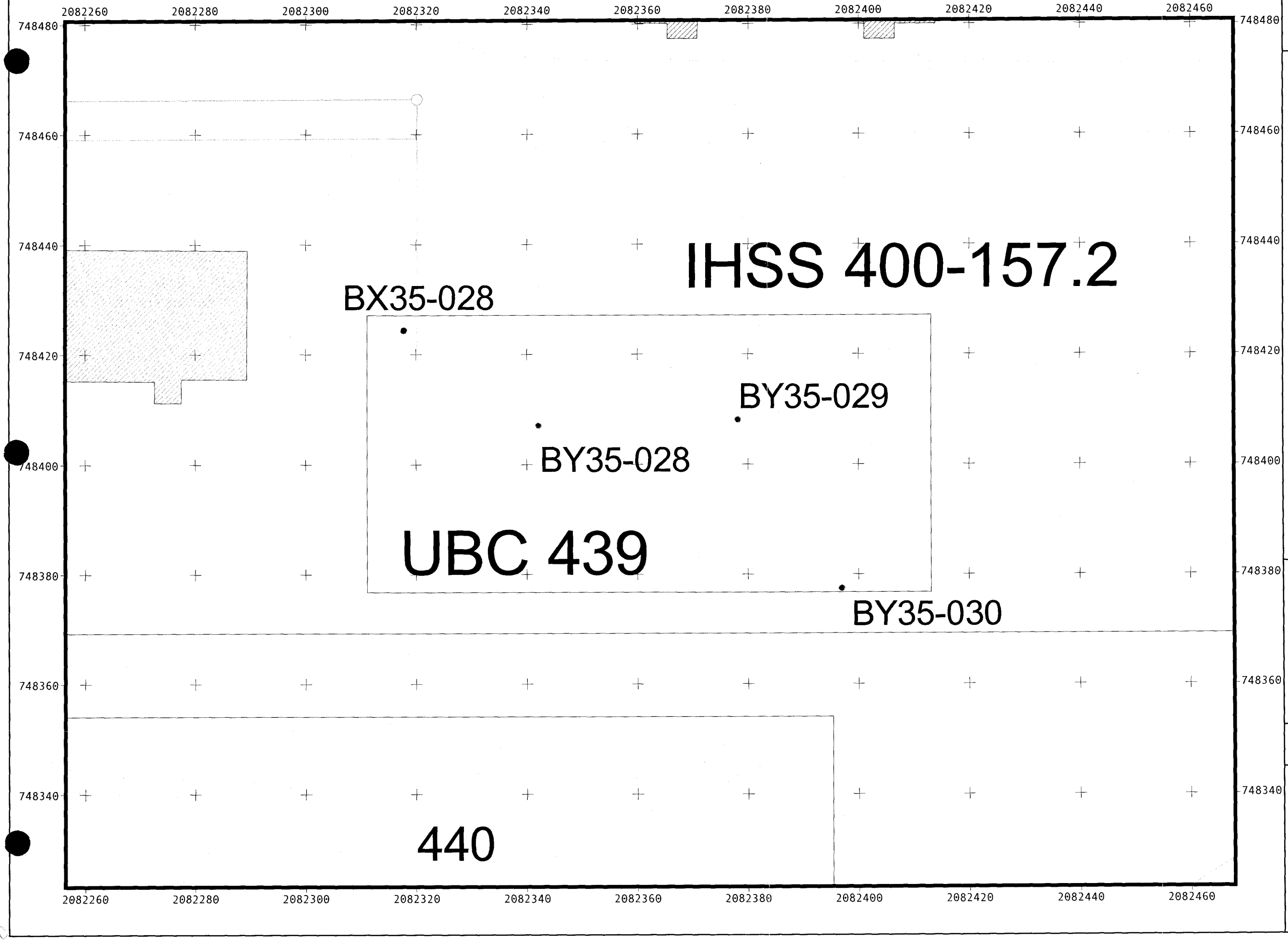
Prepared by: RADMS Remedial Action Decision Management System

Prepared for: KAISER•HILL COMPANY

File: w:\projects\2004\400-1\
400-1 char.apr

Date: 10/28/03

Figure 3
FY04 Sampling Locations for IA Group 400-1



KEY

- Statistical sampling location
- Biased sampling location
- UBC 439
- IHSS 400-157.2
- Demolished building
- Standing buildling
- Storm drain
- Sewer line
- Paved area
- Fence

N
W E
S

10 0 10 20 Feet

Scale = 1:200

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: RADMS

Prepared for: KAISER•HILL COMPANY

File: w:\projects\2004\400-1\
400-1 char.apr

Date: 10/28/03